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GEOGRAPHY AND WORLD POWER

JAMES FAIRGRIEVE
London Day Training College, London, England

RELATIONS OF HISTORY AND GEOGRAPHY

There are two distinct aspects of the relation of geography and history; one of these is being recognized in all but antiquated or reactionary circles but the other is scarcely recognized at all. It is recognized that geography has conditioned happenings in the past and so influences happenings now. In no sense is geography a compelling force as has been suggested by some scientific teachers. We have been told "here is a valley so a road runs along it; here is another valley so a road runs along that; here they meet and therefore a town or village or city has sprung up." But there is no "and therefore" in human geography. There are valleys without roads; the essential point is that certain conditions have been presented to man and he has been free to choose; different men have been free to choose different things. The aboriginal indians lived in one way on the American continent; the original settlers chose to live in a different way and their descendants, the conditions having changed, live in a different manner still. In each case something was presented and a choice was made. There is never absolute freedom to choose and in certain circumstances there is very little real choice for the sensible man, but even so there is no compulsion. Thus the mode of action of the geographical factor is fairly well recognized.

What is not so well recognized is that the present conditions—and geography is mainly concerned with present conditions—are largely the product of the past. Geography and history are very closely interconnected but we may say that the distinction between them largely lies in the fact that while history deals with the drama geography deals with the stage on which the drama is played. The stage has partly been set by natural forces but it has increasingly been set by the previous actors for the curtain is never rung down and as the previous actors leave the stage so their successors find it. Past actors from immemorial antiquity have modified their surroundings and have

left things lying about. No part of that stage, no aspect of it can be explained, described or in any useful way dealt with that does not take account of past happenings. In proportion as lands are important so is the past important as an element in the setting. However we look at it the importance of the geographical factor increases with the lapse of time.

But the relationship between geography and history is even more closely knit than has yet appeared, and this for the reason that on its material side history is the story of man's increasing ability to use and save energy, to obtain control of as much energy as possible, to use less for any given operation, to waste less on unnecessary work and generally to do things in the easiest way. The environment has been largely responsible for supplying favourable or unfavourable conditions at any given time for an advance in saving energy, so that at one time one region at another time another region has been important. That is to say that the development of the drama itself is historically related to the setting of the stage while it must be remembered that much of the action of the drama is perpetuated in the later setting of the stage.

It is the object of this paper to indicate in outline some of the chief steps in the advance in saving energy and to show how they are related to foundamental geographic facts.

The Desert: Egypt

Of the early stages of man's development and of the early geographic conditions we know very little but that little is suggestive. As far as we can see, advance in ability to save energy by individuals or small groups synchronizes with some great change in environment which supplies a stimulus to thought. The problem of living is changes and a new solution must be sought. But the great change comes with the development of social life on such a large scale that we recognize the phenomena of *the state*. There are only one or two places where we might expect the evolution of the state as distinct from the tribe or clan or village community. But when we come to examine the facts the most likely region is Egypt where in fact the state first appears. Here were conditions which made for the growth of a large unified community. The cycle is the year not the day as in equatorial regions. There is a stimulus to save but life is comparatively easy and, specially important, the desert acts as a protection so that advancement could be made free from outside interference. Here too the land was larger than could be inhabited by a single community yet not too

large for a first experiment in statecraft, while the problems of neighborhood, thanks to the shape of the country, were reduced to a minimum. What wonder is it that here a state at peace for thousands of years was gradually organized on the basis of saving energy from the present for the future, and doing things on a great scale with an absence of internal friction between the parts. The desert which made the enterprise possible at all is obviously the fundamental geographic fact.

Marshes: Mesopotamia

There is no other land like Egypt with a seasonal yet constant supply of water and securely shut off by the desert. But the land of Mesopotamia, tho not quite so advantageously placed, had many of the characteristics of Egypt and had in addition the protection afforded by marshes. It was natural that here too, and only a little later than in Egypt, there should have developed another civilization more complicated than in Egypt because the conditions are more complicated but depending essentially on the saving of energy by agriculture on a considerable scale. This is Babylonia.

But just as in long past times individual men or tribes had tried to solve the problem of living by taking energy or the products of it from other men or tribes so we see the development of the robber state in Assyria rising in an extremely productive but small area round the city of Nineveh, so small that it did not provide for more than a small community. The alternative, not forced on the Assyrians out chosen by them, was to levy tribute on neighbors and with the development of an army organization this became possible and for a time Assyrian Empires dominated a greater part of the "Nearer East." Assyria fell but Assyrian ideas still remain.

The Ways: Palestine, Phoenicia

Egypt and Babylonia owe their importance to the fact that there was an organization of settled peoples on a large scale for productive purposes. Palestine and Phoenicia are related to the fact that movement is more easily possible in some directions than others and specially that movement on water is less expensive in energy than movement over land. Nor is it an accident that Palestine and Phoenicia lie on the natural route between Egypt and Babylonia. The importance of Greece is related to the same set of facts but the conditions were still more complicated. The organization of Egypt was easy, that of Babylonia was not so easy tho not difficult. When the sea was found

to unite rather than to separate lands the Phoenician power became a reality. The sea in the same way united the Greeks but the land conditions in Hellas tended greatly toward separation. To this curious duality in environmental influence there corresponds the curious duality in the Greek outlook and ideals of life and government, in methods of living and saving energy.

HIGHLANDS AND LOWLANDS: ROME

It would have been an interesting fact had it stood alone that those lands which early developed civilizations should all have been close together. When Rome appears again in the neighborhood of the earlier states one feels certain that there is an organic relationship, that in fact the geographical conditions of Egypt and Babylonia have still a real effective influence on lands remote from them, that in short history is a living unity. It is doubtful whether Rome would ever have existed had Egypt never been. It is certain that Rome would never have had the character she did have had history, conditioned by the geography, not developed as it had done.

Previously man had tried with some success to make the most of possibilities on land and sea, or highland and lowland of small and large areas for settlement of freedom of the individual and organization on a large scale. The Roman Empire was a successful attempt based on previous successes and failures to combine apparently divergent aims and ideals of living suited to different kinds of geographical environment. Pressure of space forbids a detailed account of the geographical conditions which made this possible but one may point out how at every stage in the growth of the Roman Empire the contrasts between the fundamental conditions alluded to above were ever present so that the stage was set, both by the natural forces and by the actors in the previous acts of the drama, and the result was a scene which has left its mark on both the drama and the stage. Among many other things Roman law, Roman organization and Roman roads remain to testify to the success of methods of solving the problems presented morally and materially.

THE STEPPE: INVADING TRIBES

The Roman Empire fell possibly partly because of the action of larger geographic agencies, but certainly because the very existence of the Roman Empire had modified the setting of the stage. Any organism while growing whether it is a cabbage or an empire modifies its own environment and men outside the limits of Roman rule were

stimulated to action. From the great central steppe lands of the Old World men were partly forced by the natural poverty of the soil—mayhap decreasing rainfall had something to do with it—and partly tempted by the richness accumulated where the Pax Roman held. Comparatively few of the true nomads broke thru and when they did they destroyed where they came but otherwise left little trace. There were, however, many movements by semicivilized peoples of Europe, some within and some without the Roman Empire, all of which helped to destroy the organization of Rome as a whole, but it is extraordinary how much remained while it is to be noted that the organization of the Roman Catholic Church was for long almost an exact replica of the Roman Empire and in many ways carried on the tradition.

It was well it was so for the somewhat later attack, partly religious and partly secular, of Mohammedans and Arabs was largely of no effect in Europe because of that unity of Christendom round the churches of Rome and Constantinople which even extended their influence beyond the frontiers of the Roman Empire in the north.

With the clash of Christianity and Mohammedanism we have the first of the religious wars or wars of ideals. This might seem distinctly a setback but even such a conflict is evidence of advance in that it shows that men believed there was some end in life over and above that of accumulating power, and were willing to die for their beliefs.

There was eventually added to the religious and economic struggle; the Arabs held the key area between Europe, Asia and Africa and this was of such advantage to them that in the end they gained control of the coasts of most of the southern lands. Trade was instituted with the Indies and Islam spread in Africa, far beyond the limits of Arab rule.

Tho there was much disturbance of settled conditions in the centuries during which the steppe peoples and the Arabs played the star parts there was on the balance a very distinct advance. The world grew larger and for that reason alone much more energy became available. In particular, intercourse, religious and commercial, by land and sea between East and West, led to greater knowledge of the habitable lands and their resources and prepared the way for the next great advance. The actors had prepared a new setting for the stage; the organism had again changed its environment.

Discovery of the Ocean—Western Europe

In the attempt to circumvent the Arabs and gain control of greater stores of energy the peoples of western Europe made the world still

larger. The unity of the ocean was discovered, the Americas were discovered and the world became effectively, what for centuries it had been known to be, round. Naturally the peoples of the ocean lands, neighbors of those of the older civilizations, successively took one stage: Spain and Portugal, Holland, France and Britain, basing their importance to a greater or less extent on ocean power modified in each particular case by local geographic conditions and past history and each in turn altering the setting of the world stage.

Germany

The conditions of Germany, geographical and historical, are probably more difficult to realize than those of any other country of the world. So many historical threads seem to have met in this centre land of Europe; influences from so many directions have had their effects and even the natural geographic conditions as distinct from those established by human agency are somewhat complicated. It is indeed the very diversity of the environment which is the essential fact to note. Here the best organization possible has been the alternative to importance and according as the people have chosen to organize or to remain of no account so the history has been noteworthy or the reverse. With a very clear recognition in these later days of the importance of saving energy and using it to the best advantage—which has indeed been almost a religion—has come rather an emphasis on the material side of life and a lack of recognition of the fact that friction between peoples is as much a source of lack of power as any friction between particles of matter and may indeed waste a vast amount of energy—as was done in the late war.

Almost inevitably the world grew larger from the nucleus in the Eastern Mediterranean and history took on a definite connotation because of the way in which the changing stage had come to be set.

China

If, however, we consider, not that European section of the stage where is now one quarter of the population of the globe, but the Chinese section with an equal number of inhabitants we get a rather different view of history and that just because the geographical conditions are different. Here is the same kind of beginning as in Egypt with digging and ditching in a potential fertile area under the curtain of the mountains amid the wastes of the great Asiatic Highland. But the essential difference lies in the fact that Chinese civilization has developed continuously from the beginning till now along the same lines. There

has not been, till the rise of Japan, anything else with which to compare it. China has remained agricultural and the agriculture has been of the same intensive character as at the beginning. No people in the world obtain such returns from the land, but there is practically no recognition or understanding of the meaning of nationality simply because there has been none of the clash of peoples which has been such a marked feature in the history of Western Europe.

India

India again is different still. As far as one can understand there were no such beginnings of history in India as in Egypt and China for the reason that there was no desert. At the least it may be said that everything of importance in India today has originated outside except perhaps some forms of religion. All sorts and conditions of men have come into India, the natural geographic conditions vary greatly over the land and all sorts and conditions of states and civilizations coexist side by side. Ideals of life, of saving energy, as a result of past and present experience are very different and generally the problems of Indian government are extremely complicated.

Africa

The European, Chinese and Indian worlds make up the essential portions of the Old World but Africa remains, and Africa has no history. The people of the Dark Continent have chosen to take things easily. In the great forest the cycle is the day and there is little inducement to save. Over a great part of the rest of Africa grassland conditions prevail but without the extreme cold of winter and there is the less inducement to advance even to the stage of civilization of the steppe peoples. The only civilization to which reference need be made is that of the Sudan Negroes especially those of Nigeria. There is some evidence to show that this culture tho to a large extent indigenous to the land is related in some way to that of Egypt while there is no doubt that it has been modified by the Arab civilization of the north and the existence of native states is almost entirely due to Arab dominance. Elsewhere tho the black peoples are barbarians rather than savages and have learned to live well in their environment. They have formed tribes rather than states. Africa for long left untouched by the white men on their way to the Indies because of natural difficulties of exploration and the abscense of civilized folk, is now ruled almost entirely by the peoples of Europe while actual settlements exist both in the north and the south. Much of the continent has been made more

productive but the Negroes remain, especially between the tropics, as the real population and problems exist which cannot be said to have begun to be solved.

Spanish America

If the cumulative influence of geographical conditions has now been realized it will have been evident that it was natural for men in Western Europe, rather than those elsewhere to discover the rest of the world. But in America, just as in the Old World, there were regions suitable to the development of early civilizations akin to those of Egypt. Both the Peruvian civilization of the Incas and the Mexican civilization of the Astecs were of the Egyptian type, with certain modifications natural to the environment; and tho they have been reinforced by the inflow from Europe, and do not appear to have the importance of Egypt, yet the wonder is that with all the disadvantages of geographical conditions as compared with those of the Eastern Mediterranean they were so little behind, while it must not be forgotten that the Indian stock still remains as the most important element in the civilization of the inter-tropical lands.

In the south and in the north of the New World, however, peoples of European blood have entered the country and formed states, Spanish and Portuguese in the south, British and French in the north as fits the stage set in the period of the great discoveries. Carrying with them the accumulated traditions, historic and geographic, of the Old World they have to a large extent set their new stage on the same lines as the old tho the natural environment has been such that in many particulars a choice of action has been possible in the New World that was impossible in the Old while divergencies occur merely because under similar conditions a different choice has been made in each case.

United States

But one great store of energy unused in the past has recently been made available, that stored in coal. Up till a little more than a century ago practically all energy became available only when it enabled men or animals to do work. Mills or ships driven by wind and mills driven by water were the only exceptions. With the use of coal the possibilities of utilizing energy by machines was enormously increased and the regions where it was easily obtained became of corresponding importance. For historic and geographic reasons coal was utilized in industry in Britain earlier than elsewhere. As this early use of coal synchronized with a culmination of importance for other reasons it is no wonder that

Britain played a leading part in the nineteenth century. Other lands felt the effect of the Industrial Revolution somewhat later and never quite made up in the race. The United States, however, possesses about half of the coal supply of the world and partly for this reason, partly for the reason that the land has been peopled by a self selected population who had the initiative to emigrate, and partly because the United States, while lying between East and West, is protected from both by a wide ocean moat. This latest organization of states on a great scale—an Empire in all but name—again most naturally occupies the front of the stage, with enormous possibilities for good. But tho it is only comparatively recently that the United States has come to take a prominent position it has been so long enough to have made fundamental changes in the world stage. The globe was known to be round nearly two thousand years ago; it was made effectively so for a few purposes some three centuries ago but it is only three generations ago that the fact became of supreme importance with the meeting of East and West across the Pacific and the opening of Japan as the result of the visit of vessels of the American navy.

The World a Coherent Whole

The world is now not only one whole but there is nothing outside that whole as there has been with previous worlds. It is now a coherent whole and, thanks to utilizations of energy undreamed of till the last generation, it is now a much smaller world than ever before. Happenings in one region at once reverberate to their antipodes. "Who is my neighbor?" is a question which applies to states as to individuals, and requires much honesty to answer; a realization that this business of saving energy is concerned with more than material ends is necessary to produce action in accordance with the answer.

This unified world may be looked on in a number of ways. We may notice the great heart-land of the Old World, organized in the past successively from the Altai, from the Turan and from Moscow and Petrograd undoubtedly a whole, whoever may rule it or any portions of it. Round the margins of the whole mass are the lands belonging to the states which have looked to the ocean from Japan round to Britain. Between the heartland and the states of the ocean margin is the crush zone of smaller states. Out in the ocean between East and West and open to both is the New World.

Again we may look at the arrangements of lands and oceans in another way. An antarctic land girded by an unbroken circle of water is opposed to an Arctic ocean surrounded by an almost unbroken belt

of land from which the continents project southwards into the ocean. Looking at the globe in this way we see that there is a great contrast between the northern hemisphere and the southern. The northern with its overwhelming preponderance of almost united land must of necessity retain its undoubted importance. There is a northern circular belt of routes connecting those lands to which nothing at all corresponds in the south. The states of the southern hemisphere are correspondingly handicapped.

We may look ahead and imagine what may happen when the coal period is over, when the supply of energy which is at the base of all modern civilization is exhausted. It is obvious that enormous changes must occur. It is possible that other sources of energy may be found or made available, but as far as we can see at present none, neither water power, oil, winds, nor tides, are likely to be able to replace coal. It is at any rate possible that recourse may be had either directly to solar energy or to energy obtained from vegetation, possibly in the form of alcohol. If this is so the regions of the world lying between the tropics, at present of less account must in their turn play an important part on the stage and the great invention of a black pigment for the skin will become an enormous economic asset.

But even if this is so, that does not imply that the older lands will become of no account. Egypt was the first state and Egypt is a state now. Greece and Italy and China have their roots in the past and are important in the present. The newer conditions will be added to the old, the old will be destroyed, the setting of the stage will become ever more complicated. Whether that stage is orderly or disorderly will depend on whether the organization is for working together as do the organs of the body or for offence like the tribes out of which the states developed. Personally I believe it will be the former.

THE DEVELOPMENT OF THE AMERICAN RICE INDUSTRY

ARTHUR E. ALBRECHT

College of the City of New York

The origin of American rice industry may be traced to a gift made by a Madagascan ship captain to a Carolina settler at the end of the seventeenth century. This settler at first attempted its cultivation in the uplands of Carolina. Other settlers to whom the original planter had given a few handfuls of rice found that its cultivation was better adapted to the lowlands where the marshes supplied abundant water

for this new crop. The raising of this crop gradually spread thru the lowlands of Carolinas, Virginia, and Georgia, and in the colonial days, rice came next to tobacco as the most important agricultural product. The industry grew in large proportions in South Carolina, which at one time produced the finest quality of rice grown. Crude methods of cultivation which did not call for rotation of crops and the fertilization of the soil compelled South Carolina to yield its superiority to other sections of the country. Last year South Carolina produced only 102,000 bushels, the average yield being twenty-five bushels per acre, while Louisiana, in the same year, raised slightly less than one-half of this country's crop, and had 700,000 acres in rice with each acre yielding thirty-six bushels. California, on the other hand, had an average yield of sixty bushels per acre but had only 162,000 acres in rice last year.

The following shows the steady increase in the production of rice in this country since 1904.

1904	21,000,000	bushels
1910	25,000,000	"
1916	40,000,000	"
1920	54,000,000	"

The fact that the United States is now exporting more rice than it imports is shown by the following table:

Year	Imports in pounds	Exports in pounds	Excess of imports, 1918 and of exports, 1919, 1920
1918	558,048,000	356,202,000	201,846,000
1919	174,596,000	496,576,000	321,980,000
1920	142,951,000	474,761,000	331,810,000

Varieties

The varieties of rice most commonly adapted to the Atlantic coast are the Carolina Gold, Carolina White, and Blue Rose. The gold variety is noted for its deep orange husk, long kernel and good yield; the White Carolina rice has a long kernel and a white husk. The Honduras and several Japanese varieties are best adapted to Louisiana, Texas and Arkansas. The Japanese variety is most commonly grown in California. The Honduras type, originally imported from the Honduras, has a long kernel, and the Japanese type, a short thick grain. Among housekeepers the longer grain variety seems to be preferred.

Recently a new variety of rice known as Caloro has been found to be well adapted to both new and old land in California. Experi-

ments have shown that it has outyielded from eight to thirty per cent of all the standard varieties of rice grown in California.

METHODS OF CULTIVATION

Rice must be grown in those regions having a tropical or subtropical climate and where water is abundant and easily available.

Before or just after planting, the soil must be flooded but within a few days the water must be drawn off in order to allow the seeds to germinate. A month or two later the fields are again flooded for a period of six to seven weeks. During this period the water must be renewed at least once a week to prevent stagnation and troublesome water weeds from taking root. At the end of the flooding period the water is finally drained off and the grain allowed to ripen.

Rice is generally ready to be harvested six months after planting. After it has been harvested it must be dried out before it can be threshed.

THE MILLING PROCESS

It is customary for farmers who have grown rice to thresh it themselves. The threshed product is straw colored and is known as "rough rice" which is generally sold to mills. Before the rough rice is ready to be milled, it passes thru machines which remove foreign material, light weight grains, and also beards and stems from the rice grain. The product is now known as "cleaned rough rice."

The actual milling process begins with the placing of the rice thru a hulling machine which removes the "shell" or "paddy," leaving a brown cuticle on the rice grain. This product is known as "brown rice." Altho an extensive campaign has been carried on to induce consumers to buy rice in this form, the results have not been very marked as only a fractional part for immediate consumption is retailed in this form.

The "brown rice" which goes thru a further process is put thru a large rapidly revolving upright cylindrical barrel lined with sheep skin for the purpose of removing its brown coating. In this process, some of the grains are broken and the rice must therefore be screened to separate the whole grains from the smaller particles. The whole grain sold after this process is known as uncoated white rice. Some rice, however, is again run thru a revolving barrel known as a tumbler, which contains a very small amount of glucose and talc. The resulting product is known as coated rice or polished rice. Altho some people are violently opposed to polished rice, rice dealers assert that it

is not injurious as only a small amount of harmless coating is added which for the most part is washed off before cooking. The broken particles are screened into several grades of broken rice, the lowest grade of which is known as brewers' rice and was formerly sold to brewers. During the war much of this rice was ground down as rice flour and starch.

The Marketing of Rice

Most of the rice after being threshed by the individual farmer is either sold by him or by the cooperative association to which he belongs to the rice mills of the neighborhood. After the rice has been thru the mills, it may be sold thru three different channels: rice dealers, wholesale grocers, or thru a chain store system. Whole grain rice is generally packed in 100-pound bags and sold in large lots to rice dealers or wholesale grocers. Most of the rice sold in cartons is packed in the city of ultimate sale. The greater part of the rice consumed in New York City comes by way of steamship from Louisiana.

Rice dealers generally re-sell the rice to wholesale grocers who either dispose of the rice to retail stores or to chain store systems. Only wholesalers and chain stores functioning on an extensive scale buy direct from rice mills.

In order to facilitate the contact between sellers and buyers on the New York City market, a rice exchange has been organized and is managed under the general direction of Mr. Walter J. Moses at 90 Wall Street. At the present time the exchange maintains a large room in this building where buyers may examine samples of rice and make arrangements with rice growers, millers and dealers concerning its sale. It is the plan of the rice exchange to expand its scope in such a way as to ultimately function in a way similar to that of the produce exchanges.

Rice Prices

A study of the rice prices shows that wholesale prices reached their peak in New York City in 1919 when the price was 14 1/5 cents per pound. In that year the average retail price reached the high mark of 16 9/10 cents per pound. By December 1, 1920 the wholesale price declined to 8 1/2 cents per pound and the average retail price to 12 3/5 cents per pound.

The following table gives the wholesale and retail rice prices in New York City since 1913.

New York City Rice Prices

	Wholesale Prices on Dec. 1, per lb.[1]	Retail Prices on Dec. 15[2]	Margin
1913	5¼ c	8 c	2¾ c
1914	5¾ c	8¼ c	2½ c
1915	5¼ c	9⅕ c	$3^{19}/_{20}$ c
1916	5½ c	9⅖ c	$3^{9}/_{10}$ c
1917	9 c	$11^{7}/_{10}$ c	$2^{7}/_{10}$ c
1918	10¾ c	$13^{9}/_{10}$ c	$3^{3}/_{20}$ c
1919	14⅕ c	$16^{9}/_{10}$ c	$2^{7}/_{10}$ c
1920	8½ c	12⅗ c	$4^{1}/_{10}$ c

[1] Wholesale prices from U. S. Department of Agriculture
[2] Retail prices from U. S. Bureau of Labor Statistics

The spread between the wholesale price and the retail price in New York City has varied from 2½ cents in December, 1914 to $4^{1}/_{10}$ cents in December, 1920. In December, 1919, the spread was only $2^{7}/_{10}$ cents altho higher wholesale and higher retail prices prevailed. In other words, in 1920, wholesale prices declined more rapidly than retail prices.

Consumption

Figures of the United States Department of Agriculture show that the consumption of rice is increasing in this country. Seven years ago we were consuming only nine pounds of rice, but at the present time our national per capita consumption is eleven pounds. It is interesting to contrast our eleven pounds per capita consumption with that of Japan where 324 pounds is estimated to be the per capita consumption and with India where 262 pounds is the average consumption per person.

In northern homes the use of rice is not so extensive as in the South where rice is produced. The reason for its lesser consumption in the North may in part be attributed to unfamiliarity on the part of housewives with its many possible uses.

Rice as a Food

Among dietetians rice is recognized essentially as a carbohydrate. The white or polished rice contains more carbohydrates than the brown rice but less minerals, water, proteid, and fat. When cooked in four quarts of water, a cup of rice more than triples in bulk, each grain remaining separate. One cup of rice cooked in a double boiler will absorb one quart of milk.

It is a food that is easily digestible and can be used in many ways. It may be used for any meal. It can be served as a breakfast food with

milk and makes an excellent basis for soups, salads, and desserts. It may also be used as a vegetable. Like other cereals, it is comparatively cheap and is recommended by the United States Department of Agriculture as an economical means to supplement and extend the flavor of the more expensive foods.

A REVIEW THAT WAS A NEW VIEW

HARRIET SMITH
Sam Houston Normal College, Huntsville, Texas.

A Socialized Lesson on the New Europe

It is a happy teacher who can come to the end of recitation periods with the pupils clamoring to go on, and who knows that the issues involved are well worth while. What follows is the sketch of the working out of a problem that filled a series of five such recitation periods last spring.[1]

The lesson was planned to serve two very different groups. It illustrates the neat correlation possible between the work of a normal school and its observation school. This lesson was undertaken primarily to illustrate to a teacher training group one type of review, and to serve, when mineographed and in their hands, as the basis for a written report which was to take the place of the conventional type of term examination. The particular problem was chosen because it offered a good review to the sixth grade class just finishing their study of Europe.

The interest of both groups was finely sustained thru the series of periods. For the sixth grade it was, I believe, sufficiently vital to form the basis of permanent interest in the race map of Europe, the divisions of Europe into political units, and the effect of such divisions on the people living there. For the normal school students it was that and more; it showed them thoroly socialized, democratic conditions in grade work, conditions which they could surely duplicate in their teaching, and it substituted a likable, practical test for the barbaric quiz which might have been perpetrated.

The work was planned to cover five school periods. As a matter of fact, the interest of the pupils carried the preparation and the discussion past the periods allotted to the solving of the problem. A week is time enough for the work, and shorter time may be used.

[1] The recitation, stenographically reported and mimeographed, may be obtained by addressing The Department of Geography, Sam Houston Normal College, Huntsville, Texas.

THE DEVELOPMENT OF THE PROBLEM BY PERIODS

In the first period, following the motivation supplied by the teacher, the pupils of the sixth grade, under the leadership of the teacher, formulated the problem and the outline which follow:

MOTIVATION: The World War greatly changed the map of Europe. The war was projected by Germany and its allies to increase the territory and the influence of the Central Powers. It resulted in their defeat, and they lost much territory in Europe.

PROBLEM: How was it determined what should be given up, and what was done with the lost territory?

OUTLINE

I. What nations constituted "The Central Powers"? Why were they allied?
II. What territory in Europe was held by The Central Powers in 1914?
III. What nations in Europe constituted "The Allies"?
IV. What regions were added to the territory of The Allies?
  1. To Denmark, to Belgium, to France, to Italy, to Greece, to Rumania
  2. Tell why in each case. (See Race Map.)
V. What independent countries were newly created?
  1. Those with boundaries already established
  2. Those with boundaries not yet established
VI. Internationalized ports—Danzig, Fiume, Constantinople
VII. Regions temporarily controlled by Inter-allied Commission
  1. Zone of the Straits
  2. Zone of Allied Occupation in Germany
VIII. Regions in other continents formerly controlled by some of the Central Powers
IX. Summary and solution of the problem

In the second period, which was for the sixth grade a supervised study period, the pupils made preparation for the solution of the problem. They used the maps, magazines, and reference books put out by the teacher for them. Each pupil prepared himself on all the points covered by the outline. The following reference material was provided:

Map of Europe in 1914
New map of Europe
Race Map of Europe, National Geographic Society
The New Europe, pamphlet by Ginn and Co.
Stoddard and Frank: Stakes of the War
New texts on geography by Frye and Atwood and by Brigham and Mc Farlane
National Geographic Magazines
Lantern slides on Europe

At the beginning of the third period, the teacher made individual assignments, dividing up the work of the recitation among the various pupils, according to their several abilities. During the recitation, every statement made was warmly contested unless indisputable authority was given.

Here, in what was the most valuable part of the work, more than one period was needed. This socialized recitation among the pupils, with the teacher hardly more in evidence than any other student in the group, resulted in oral expression, the practice of intelligent criticism, the eradications of errors, the defense of one's position, and the habit of letting final judgment rest on definitely quoted authority.

In the fourth period, the "threshed out" material was presented by the sixth grade pupils before the class of normal school students for whom the work had been planned. These students took notes preparatory to making a written report on the lesson. During its progress, the lesson was taken in short hand by three pupils from the Business Department, who checked each other's errors before having the report mineographed.

The sixth grade pupils recited from a black board outline. Wall maps and reference books were freely referred to. The reports were made according to the individual assignments made by the teacher of the grade. They were presented in turn by the pupils, the teacher remaining in the background almost entirely.

Before the next recitation period, each normal school student and each training school pupil was given a mimeographed copy of the lesson.

For the normal school students the fifth period was a discussion of the plan and of their reports on the lesson they had heard presented. For the sixth grade pupils it was a correlation of geography with arithmetic, and a gauge by which each knew whether he had had a right percentage of the class activity. Each counted his own words, the teacher counted hers, the totals were placed on the board, and each estimated what percent his words were of the total number. The teacher's percentage was found to be .007, a most gratifyingly small percent. The class counted, also, the number of points made and estimated their individual percentages.

Definite Benefits Accuring from a Lesson so Developed

1. The class works from a plan made by them rather than from an outline given by the teacher or the text and constructed from the adult standpoint.
2. The pupils are trained in the use of reference books.
3. The individual pupil is held to accurate statements based on undeniable authority.
4. Practice of the best kind is had in oral expression.
5. The information gained is used, not as an end in itself, but as a means to a desired end.

6. Correlations are made with other school subjects.

7. The recitation is socialized—it is like an earnest conference among trained thinkers anywhere; it is unlike the old-type, autocratic recitation dominated by the teacher.

8. Such preparation and such class conferences develop the pupils in independent thinking, give training that is needed in higher school courses, and prepare for intelligent citizenship.

A FIFTH GRADE EXPERIMENT IN MAPPING

C. G. Stratton
State Normal School, River Falls, Wis.

The writer recently visited a fifth grade where the children were constructing a map of North America by means of a system of meridians and parallels. This exercise, which was preceded by a careful and effective study of latitude and longitude, was designed not only to help them to understand the meaning of map symbols but to teach them the main physical features of the continent. Spaces for laying out the network of meridians and parallels were decided from measurements taken along the margin of the map in the text. Rough drawing paper and soft drawing pencils were being used. In spite of the crude methods employed the results were so promising that permission was asked, and granted, to allow the class to attempt the making of another map under more favorable conditions. The teacher was supplied with the elements necessary for the construction of a simple conic map of North America on the scale of 1: 50,000,000, accurate only to the nearest tenth of an inch, as follows:

ten degrees on the middle meridian, nine tenths of an inch; ten degrees on the middle (40th) parallel, seven tenths of an inch; distance from the middle parallel to the center of circles, six inches.

She was directed to draw the middle meridian and the fortieth parallel on each paper and allow the pupil to finish the net. A ruler was to be used in drawing the meridians. The parallels were to be drawn free hand. The other directions follow.

Use white paper with a smooth finish.

Use a sharp 3H pencil for the net-work and a softer pencil for the frame, the coast line and the lettering.

Use a ruler with the inches divided into tenths. (Cost 2c.)

Make the frame two-tenths of an inch in width.

Make light lines for the net-work and heavier lines for the frame and map.

Work on a smooth surface. Have several sheets of paper under the map while working on it.

Make only one line to represent the coast. Avoid double lines.

Number the meridians and parallels on each side and at the bottom of the map, making the figures vertical and placing them in the middle of the space between the two lines of the frame.

Use light guide lines for all lettering and make all words parallel to the bottom of the frame.

Use only capital letters and make them all vertical.

The results are shown on the accompanying four maps, which are the best and the median maps of the two sets. It was necessary to trace them with ink for engraving but the tracing was carefully done and faithfully reproduces all lines showing on the originals. In the first set, seven out of eighteen maps were total failures. In the second set, all were acceptable. No doubt much of the improvement shown in the second set was due to experience gained in making the first. It is also apparent that most of the faults of the second set are due to the fact that the directions were not followed exactly.

It is not contended that this is always a proper exercise for the fifth grade. It may be more suitable for the sixth or seventh year. It does show, however, that excellent results may be obtained when the teacher knows definitely how to proceed. These children became very enthusiastic as soon as they discovered that they could make a map that was—to them—neat and attractive.

Children love to make maps and grafs if they are taught to make them neatly. However, it is of little avail to insist on neatness unless they are shown of what neatness consists. There seems little doubt that much time can be profitably and pleasantly spent in the construction of maps and grafs to illustrate facts and problems of political, physical and commercial geography. In trying to introduce this work in the grades the teacher will often be found objecting because, she says, it is too difficult for the children. Ample grounds for her belief may be found in the crude caricatures, called maps, put up on the the walls of the schoolroom for the admiration of visitors. This experiment would seem to cast doubt on the supposed inability of the children, for here we see fifth grade pupils very successfully solving a problem in mapping that many teachers would not care to undertake in any grade. The difficulty lies, not with the pupils, but with the teacher, because she has had no experience with such work herself.

If pupils are allowed to trace maps, using similar precautions as to neatness, it is possible that about as much interest and benefit results. The outlines thus obtained may be tinted to show countries, rainfall, population density, location of cities, production and other facts of geographic interest. Since the most important thing in the so

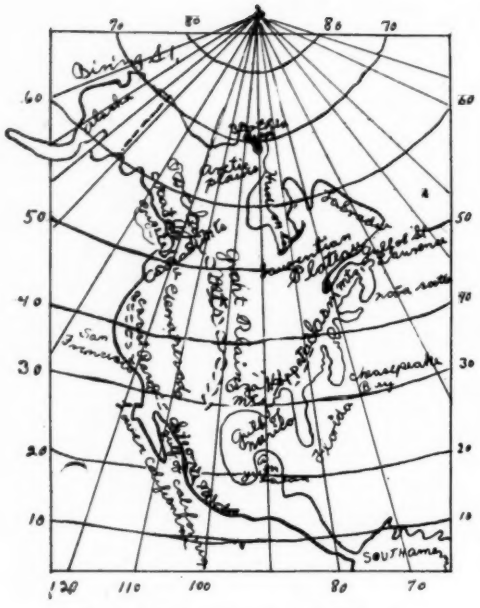

FIG. 1. Best map of the first set

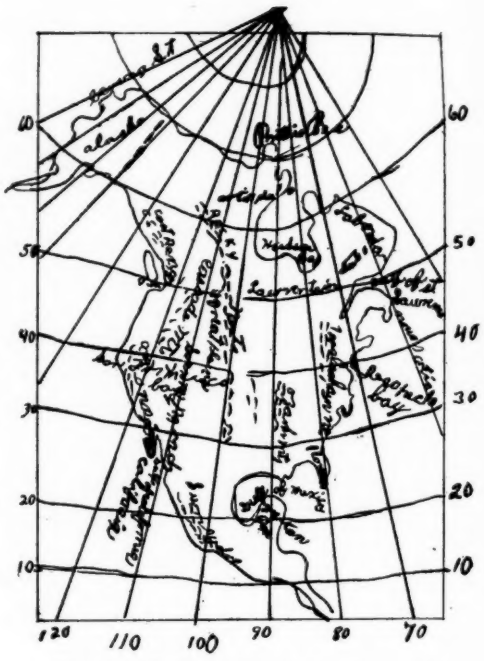

FIG. 2. Median map of the first set

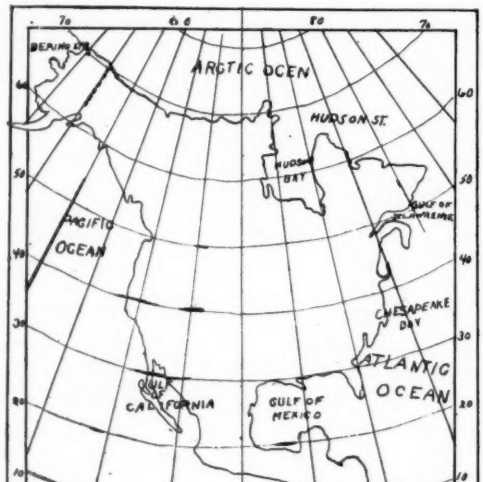

FIG. 3. Best map of the second set

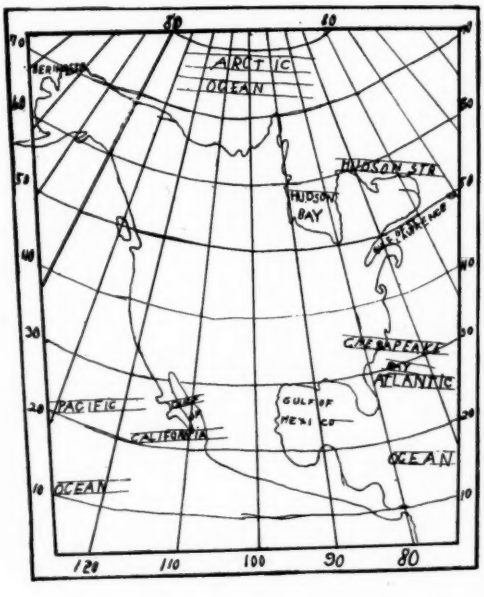

FIG. 4. Median map of the second set

called "Problem Method" is to give the pupils a clear conception of the problem and a desire to solve it, an excellent method is to have them represent the FACTS on a map or by means of a graf. The problem is then evident and the pupils can state it themselves. It is, perhaps, not too much to say that no problem should be formally presented that is not capable of grafic representation. If all others were discarded, it would go far toward clarifying the matter of the problem method for the confused teacher of the present. It would at least do away with two sorts of pernicious problems which are now flooding geographic literature; first, the freak problem, conceived by an adult mind and appealing to nothing within the child's interests or experience, and second, the problem based on false premises.

A SIXTH GRADE PROJECT IN GEOGRAPHY[1]

MARY V. SMITH
Worcester, Massachusetts

For several years I had had in my school what I liked to call projects but I knew that they were simply attempts and little better than the old problem method. One fall when returning to my school after an especially inspiring six weeks at summer school, I made up my mind to try some projects like those I had heard about.

One project had made an especial appeal to me. It was an Oriental exhibit. As worked out by the other teacher it seemed wonderful to me but I knew from past experiences with my schools that I could not hope to reach her height of success. Her school was made up of twenty-five American-born children from well-to-do homes whereas I had forty-five children from homes where little English is spoken. A school made up of Armenians, Finns, Swedes, Italians, Negroes and a very few Americans nearly all coming from very poor homes. The other teacher was able to co-operate with the drawing teacher, the sewing teacher and manual training teacher in decorating, in the making of costumes and in the building of booths. I knew that I could have no help from any of the special teachers in my city.

When I thought of all my difficulties the problem seemed large but I knew that there were plenty of other teachers placed just as I was so I decided to see what I could do with such bare prospects. The results surpassed my fondest hopes.

[1] Presented January 21, 1922, before the Massachusetts Branch of the National Council of Geography Teachers at Boston, Massachusetts.

GETTING THE PROJECT

My personal project was how to get the work initiated by the children for I had learned that to be a project it must be purposed by the children or if suggested by the teacher, whole heartedly adopted by them. I had to set the stage and then stimulate their minds to act.

We began our term's work with the study of Asia as a whole, taking up one natural region after another. I had begun to wonder if I was ever going to find the opportunity to launch the project when one day a child announced in class that the other sixth grade was not studying Asia. I thought I saw my chance so I said, "Couldn't we, as a class, do something to show the other grade what we have learned about Asia?" They became enthusiastic at once for they liked the idea of showing the other class what they had learned. The big problem then before them was how to do this. Different children mentioned keeping note-books, making charts or preparing speeches. None of those suggestions seemed to fully satisfy so the question was left over until another day.

At the beginning of the next lesson, I talked about the big exhibit of war trophies that was being held in the city. The children were telling me all sorts of things that they had seen when some one said, "Why couldn't we have an exhibition to show Miss Blank's class what we learn about China?" The class were wildly excited and thought it would be just the thing to do.

PLANNING THE EXHIBIT

For the next few days we spent every geography period in planning the exhibit. At first the class felt that they wanted to confine the exhibit to China but later decided to make it an Oriental exhibition so as to be able to show things from other countries.

We kept on the board a list of the suggestions as to what we might do, until it grew so large that we had to have a child keep a record of the suggestions in a note-book. Some of the ideas were discarded at once, others not until the project was well under way.

When the time was ripe, I advised organizing the material. The children grouped the things to be done under such headings as people, religions, homes, etc. They felt that they ought also to learn about the surface and climate, here they decided it would be best to study each country in an orderly way. The first lesson planned was to be on the position, boundaries and size of China. This was more or less of an ordinary lesson in geography except that the children had their

books open before them on their desks. As soon as anything new was discovered, that fact was put down to be used later. Many of the lessons from then on were of that type, books open while the children hunted for data.

Right at this point the question of getting those facts over to the other class was discussed and they finally decided to write compositions, so at once the language periods were used in composing compositions from the data collected.

During the first lesson I was tempted to recommend getting library books but I wanted the idea to be initiated by some one in the class. It wasn't long before a child said, "Couldn't we get some books about China from the library?" A group of children was chosen to go to the library. They came in the next day with eight or ten books.

As the lessons progressed and the compositions were being written, the class decided that it would make the exhibit more interesting if they were to mount all of the pictures that they could find to illustrate the facts learned. As each subject was studied, groups of children worked at mounting the pictures collected.

With such problems as that taken up the first day, the children decided that they could show position and boundaries better by making maps while others were writing compositions or mounting pictures.

When we studied the surface some one volunteered to write the composition, and another to collect and mount the pictures of mountains found in the Orient, and still another to make a surface map. Thus we went on from day to day writing our compositions and pasting our pictures.

Collecting Exhibit Material

About the time we began to talk about the people the children brought in a few little cups and saucers but they were so poor and unattractive that I began to fear we would not be able to have much more in the exhibit than the compositions, maps and pictures. I was wrong for when they found that each thing brought in was talked about they began to scour the neighborhood until we really had quite an interesting display of Oriental things.

Soon the children who hadn't offered to do any of the extra work began to wake up, they drew pictures of such things as the shoes worn in the Orient, the pillows they sleep on, and how eggs are sold in Korea, until we had a collection of free hand drawings to show.

At least one composition was contributed by each child, usually the the first draft was read to the class and criticisms given for its improvement. When a lacquered tray was brought in the class decided that the subject of lacquering had better be looked up and a composition written. The same thing happened when the Chinese money was brought in. The money was sewed onto a card and an article written about money in China.

The pictures mounted were grouped under such headings as: How They Travel in the Orient; Scenes in Japan; Boys and Girls of the Orient; Rice; Tea or Silk Cultivation.

A collection of toys made in Japan led to compositions on the doll festivals, the games played in the Orient, etc. Most of the data had to be hunted up in the library books so good training in using indexes was gained.

We had collections of the products such as tea, rice, silk and cotton with compositions written about each.

One boy found in my set of pictures some flags from the Oriental countries. He mounted those and had a splendid title, well lettered. This led a little girl to the making of a Japanese flag. She made the white flag with the red ball in the center. Her sewing suggested to some of the girls that they might make dresses for dolls so we had a few dolls dressed in Japanese and Chinese dresses.

One child had charge of the newspaper clippings that were brought in. These after being read and discussed were mounted on card board and exhibited.

In the building was a Chinese boy whom the children persuaded to write his name in Chinese. That and a paper on which the neighborhood laundryman had written, "The Great Wall of China" were our choicest exhibits.

When the time for arranging our exhibit drew near, we used the drawing periods for making posters and signs. The posters said, "Have You Seen The Oriental Exhibit?" or "Don't Fail to See the Exhibit." The signs told what the different articles were, who had brought them in and if possible where they had been obtained. A favorite sign to be printed was, "Please Don't Handle."

At this time the spelling lessons were given over to learning such words as exhibition, oriental, lacquer, etc., while the reading lessons were used in getting information from the library books. For weeks before the exhibit every lesson except the arithmetic and history was motivated by the project.

It is impossible to describe here all of the things which the children did but the project moved along much as here outlined from early in September until Thanksgiving time when the "the big event came off."

Resulting satisfaction is one of the requirements of a project. I think you would have felt that there was satisfaction if you could have seen those children the day they were setting up the exhibit and writing the invitations to be sent to every parent and to each room in the building. One heard such remarks as, "That's mine. I did that."

The Exhibition

The crowning joy was "exhibition day" when they took turns telling the visitors about the exhibit and showing the other classes around.

We exhibited the articles on tables in the long corridor and hung the compositions, maps, etc. on the walls. The corridor is rather dark so Japanese lanterns were hung over the electric light bulbs and with our one Japanese parasol spread open we looked very festive.

One in a doubtful frame of mind as to the value of project teaching might ask, "Did the children learn the essential facts about Asia?" To answer that question and to prove that this class had learned as much as former classes I made out and gave to them a set of old fashioned examination questions. The high marks from every child answered my question as to the knowledge gained.

LABORATORY WORK IN GEOGRAPHY

Flemin W. Cox
University of Illinois

It fell to my lot, a short time ago, to grade a number of examination papers in geography. The papers were answers to a set of entrance examination questions of the University of Illinois, altho those taking the examination were not applying for entrance. The credit desired was equal to one entrance credit, and to secure this it was necessary for each pupil to present a laboratory notebook.

The notebook is supposed to show the character of the work done in the laboratory. It does this, and reveals to an even greater extent than does an examination, what kind of work the school has been doing. The notebooks presented varied widely. The greatest variation was not so much between the work of different pupils, as between the work of different schools. In fact, the lack of difference between the works of pupils from the same school was a cause of surprise, and it

raised the question as to how the work had been presented to bring such a uniform result.

TYPES OF NOTEBOOKS

The notebooks examined may be put into four groups. The work of the first group consisted of drawings, accompanied by descriptions. The drawings consisted of pictures, maps and diagrams which seemed to have been copied from textbooks. There is not one but could have been copied, and a reasonable interpretation of the evidence is that the textbook was the source of the drawings. A number of drawings consisted of representations of scientific instruments, such as the thermometer, barometer, anemometer and hydrometer. The descriptions which accompanied the drawings might have been copied from the textbook, also, or from the dictated lectures of the instructor. It was evident that the pupils copied much that they did not understand. Their answers to the questions of the examination showed this. There was no evidence that field trips had formed any part of the laboratory work. The work was of such a nature that it might have been done by pupils who never left the study or recitation room. They did not need a laboratory, altho they may have sat in one. Another striking characteristic of the work of this group was the absence of any evidence of inspection or correction by the instructor. There were numerous mistakes, but they were neither marked nor corrected.

The second group of notebooks showed work very similar to that of the first. In fact, the greater part was of the same character. It differed in one respect. There were a few experiments in which it was evident that the pupils had been given certain data and the work of the experiment, as shown by notes and drawings, consisted in the interpretation of the data. The notebooks of this type showed no evidence of inspection by the instructor. As in the case of the first group, there were mistakes that were neither checked nor corrected.

The material of the third group of notebooks consisted chiefly of definitions. The definitions were exact, smacked of the language of the textbook of a generation ago, and had a logical form, resembling a legal brief. It was plainly evident, that all the work, except the copying, had been selected, arranged and given by the instructor. The books were in no sense laboratory notebooks. The pupils could have made them without understanding in the least what it was all about. Some of the pupils who handed in this type of notebooks made good records on the examination and some made poor ones. There was no evidence of inspection or correction.

The fourth kind was represented by only one notebook. It was an unusual notebook, and in bulk was from two to three times as large as the others. It consisted of answers to questions arranged into groups called lessons. It was evident that to answer the questions, a search was required. This search led the pupil, for the most part, to a textbook, but sometimes to maps, government reports, and sometimes out upon an individual field trip. My interpretation of the work of this notebook was that it was the result of study by correspondence. Altho laboring under certain disadvantages, the pupil had been forced to do original work. The amount of work done was large. It had been gone over carefully by the instructor, and most of the mistakes had been checked and corrected. Not only mistakes in geography had been marked, but also mistakes in English. Praise was given for good work, and censure for careless. The pupil represented by this notebook wrote one of the bext examinations of the whole group.

What Is Good Laboratory Work?

This examination of a number of notebooks raised a number of questions.

1. Of how much value is laboratory work in geography?
2. Is there the right kind of material in geography for laboratory work and, if so, what is it?
3. Are field trips good laboratory work? Are they a necessary part of the laboratory work?
4. What methods should be employed in making a notebook in geography?
5. Does the material of geography differ enough from that of other sciences to call for changes in methods of doing and recording laboratory work?
6. Is it a profitable use of laboratory time to make drawings of scientific instruments or drawings of pictures of scientific instruments?
7. Should laboratory work be performed without inspection and correction by the instructor?
8. Should high school pupils copy lectures and notes? If so, should the bulk of the work be done in this manner?
9. What lessons has the correspondence school for teachers?

Summary

These questions have been discussed many times in an academic manner, but this series of notebooks shows how the work has actually been done in schools: Over sixty-one per cent of the work was in

Group I; over eighteen per cent of the work was in Group II; over fifteen per cent of the work was in Group III; one pupil represented Group IV. Of Group II, sixty-six per cent was of the copying kind, and thirty-three per cent called for the interpretation of data.

These schools whose work furnishes the basis for this discussion may not be representative schools. One cannot, however, but ask what is the character of the work done in representative and other schools.

THE GEOGRAPHIC LANTERN SLIDES OF BENZINGER, STUTTGART, GERMANY

INTRODUCTION

Something over a year ago the Research Information Service of the National Research Council established a special apparatus and laboratory information section for the development of which the writer was made responsible. His connection with the Division of Geology and Geography coupled with a number of letters from universities requesting information on slides suitable for geography teaching soon led to a special interest in commercial lantern slides. The catalogs of about fifty firms and bureaus have been collected, including English, French, German, and Swiss. Professors de Martonne, Ströhl of Zurich, and the German Geological Survey assisted in obtaining the names of foreign firms.

The work soon showed a great mass of material which varied greatly in value and made it evident that no teacher can hope to select the most desirable slides from the catalogs as now presented. When, therefore, one catalog was finally obtained which allows of this to perfection, it seemed that due publicity should be given the dealer, both for the information of teachers and as an example to American dealers of what every teacher would like to have placed before him. Any information of this sort should be cheerfully received by the latter in these days of increasing emphasis on Visual Education.

The catalogs referred to are those of Benzinger of Stuttgart, Germany. In these 938 selected slides are reproduced in miniature with descriptive text and presented as follows:

Vol. I. Extra-European views 362 pictures, 139 pp.
Vol. II. Europe without Germany, etc. 201 pictures, 82 pp.
Vol. III. Germany and German Austria. 375 pictures, 184 pp.

Other volumes are Württemberg and Hohenzollern, 144 pictures, 47 pp. with descriptive text by Robert Gradmann, Professor of Geography at the University of Erlangen, and Bavaria, 216 pictures, 64 pp., with descriptive text by Doctors Chr. Kittler and D. Häberle.

All are nicely bound in stiff cardboard covers. The reproductions are $1\frac{1}{2} \times 1^{1}/_{16}$ inches and give an excellent idea of how the slide itself would appear.

Various paper-covered "Parts" are also published which contain the illustrations and titles only. Parts 9 and 10 duplicate the pictures of Vol. I, Part 11 those of Vol. II, and Parts 12 and 13 those of Vol. III. Part 15 is a name and place register of the 938 views. These Parts formerly sold at the nominal price of one mark each. Other less important circulars are also available.

An analysis of the illustrations shows that of the 362 views of Vol. I, perhaps 112 deal with buildings, statues, etc., while about 65 of the 201 views of Vol. II and about 100 of the 375 views of Vol. III, show similar subjects. A few pictures of buildings (Swiss chalets, Kirghiz "yurts," etc.) which may have real geographic value, were not counted as buildings in the estimate.

Benzinger is not the only dealer to publish descriptions and illustrations of his slides. Numerous other firms both domestic and foreign publish descriptions, and a very few publish prints.[1] No American firm, so far as known, publishes other than scattering illustrations. Haynes' excellent folder on Yellowstone National Park is too specialized a case really to constitute an exception, tho it should prove an incentive. Benzinger, however, offers an unusually excellent, perhaps unique, combination of description and illustration. The scientific character of his descriptions is far more evident than is usually the case. This is not accidental, since some geographer of note is made responsible for each of the 108 sections into which he divides the world. The whole is under the editorship of Dr. C. Uhlig, Professor of Geography at the University of Tübingen, and the collaborators include among their number such scholars as Professor H. Philippson (Bonn), Hans Meyer (Leipzig), E. Oberhummer (Vienna), A. Hettner (Heidelberg), A. Penck (Berlin), and E. v. Drygalski (Munich). Furthermore, many of the individual descriptions are signed, as that of the Karst Topography, quoted beyond.

Unfortunately, the very definiteness of the descriptions and the shades of scientific meaning introduced thru the technical knowledge of the writers constitute one of the drawbacks to a general use of the text; in the case of a reader not thoroly acquainted with German technical terms, the most important words are just those for which no proper meaning can be found even in the best German dictionaries ordinarily available. With the prints already made and the German text written, it is to be hoped that the publishers may find it possible to publish an English edition.

Altho many other foreign geographic lantern slides, including such German firms as Kruess, are available from American dealers, no American firm, so far as the writer knows, is at present acting as agent for Benzinger. It is highly desirable that some one should act as his representative here; meanwhile, the slides can be imported duty free for educational purposes.

Examples of Benzinger's Descriptions

The best way of giving an idea of the character of the descriptions accompanying each slide, is by quoting some of them. In selecting those to be quoted, a few which were obviously useless geographically were discarded; for the most part they are random selections. Note in all cases the definite references to the slide under consideration. My own comparison with the photograph of Dover, for instance, shows that the features mentioned in the description clearly appear. The beach, the cliffs, and the hanging valleys are all there.

Translations of descriptions of landscapes, dwellings and topographic features follow:

Typical Danish agricultural landscape, Jutland. The generally undulating surface of the Danish Islands is formed by a drift-sheet one to fifty meters thick which rests on Cretaceous formations. It is largely composed of calcareous till which is conspicuous because of its extraordinary richness in lime. The Danish farmer early understood how he might supply the lime content again to the overlying beds which had become decalcified thru leaching, by bringing the deeper beds to the surface. Thus, with the assistance of a favorable warm and humid climate, he has carried on an agriculture which is characterized by fruitful fields and meadows, interspersed with splendid forests as our picture shows. Beech forests especially characterize the Danish landscape. In them occur many stately trees with especially beautiful broad branched crowns, a form of growth which best leads to a scattered stand. In this manner the park-like character of the landscape is heightened.

The tidal flat at Duhnen. Where the land, as is often the case on our North Sea coast, stretches off perfectly flat towards the sea, there frequently extends seaward a broad strip more than a kilometer wide subject to the twice daily changes of the tide; twice a gray sea

[1] I am at present in correspondence to see what the Swiss Geography Teachers' Association has. They advertise an illustrated catalog with text. Wehrli of Zurich, Switzerland, has an excellent catalog reproducing 1000 slides of Switzerland. These reproductions are of higher quality than Benzinger's. Correspondence is under way to find out if a descriptive text is published.

surges there; twice the shallow sea bottom dries and becomes passable. Thousands then go there to capture fish, crabs, and other forms of sea life. There also gulls and other sea birds find their meals. The outlets of the rivers to the sea—which flow thru the flat in tortuous meanders and are full of water even at ebb tide—are called "Prielen" and make the passage of the flat really dangerous for those not acquainted with the place, especially at the approach of flood tide. The flat is navigable for boats of small draught suitable for drawing upon the sand or mud.

Coast of Dover. England approaches nearest to the European mainland in the Kentish country. Here the Channel, called the "Strait of Dover" in its northern half and the "Pas de Calais" in its southern half, is only 32 km. wide; in clear weather the opposite coast can be clearly seen. The land breaks off precipitously in chalk cliffs often 100 m. high. The valleys meet the sea mostly as hanging valleys high up on the steep edge, far above the surface of the sea so that the region is easy to defend. The natural inaccessibility is considerably strengthened by the artificial fortifications of the high lying forts of Dover northeast of the city (background to the left), still more by the Citadel of the Western Heights. Dover itself lies at the mouth of a little valley, was originally a fishing village, then at the end of the Middle Ages and the beginning of modern times, a port of passage to the Continent, especially to Calais, and for 90 years past thru the building of enormous piers, a prominent naval base over against Flanders and Germany. In the picture only the bathing beach of Dover is visible. The naval base lies to the right of the observer, who is looking northeast. Dover is also a watering place; in 1911 it had 44,000 inhabitants.

The Thames valley at Oxford. The Thames, England's mightiest river, passes thru south England with numerous meanders for a distance of 405 kilometers. The steep erosion valley leads thru cuestas of Cretaceous and Tertiary and, like the rivers of the south German tableland, now breaks thru the steep slopes of the cuestas, now makes its way parallel to their base. The river above London is bordered by both drives and large parks in which small villages, old farmsteads and ivy mantled castles are scattered. As a route of commerce the Thames above Oxford plays only a moderate rôle; further down in its course, thru canal connections with the Avon and the Bristol, it becomes an important business thorofare connecting London with the West. Much use is also made of the river for sporting events. The annual boat races of the University of Oxford are famous.

Shanklin, Isle of Wight. The house of the Englishman in the villages and small towns shows predominately this characteristic, that it is a one family house. Right into the large cities this form of house is found; thus it predominates in all the London suburbs. As a rule the houses are lower than ours, with the living rooms and a kitchen on the ground floor and sleeping rooms on the upper. Usually they have a capacious dooryard from which a section is taken for a tennis court, and cared for chiefly in the interest of that sport. The interior of the houses is usually comfortable with wooden wainscotting in particular favor. Heating is by open fireplaces which accounts for the numerous little chimneys on the roofs. The fireplace forms the center of the family life on winter evenings. Shanklin, in whose old section the picture is taken, lies on the east coast of the Isle of Wight at an altitude of 90 meters. It is a notable watering place. The myrtle, with which many houses are overgrown, readily winters in the open.

Boulder beach on the south east coast of Rügen. The wearing back of the high, often white chalk cliffs, takes place mainly by the undercutting or underwashing of the breakers. The tumbled down rock masses are rolled seaward and landward by waves, often hurled against the cliff (Artillery of the Sea), there to be rounded off and made smaller. Note the great decrease in size of the fragments along the shore where they are ground into small pebbles. The landward rising boulder beach serves ultimately as a protection against further abrasion. On the upper surface above the cliff are wonderful beech forests.

Cirque lakes in the Scottish Highland. Scotland is rich in large and small lakes. The higher lying, more attractive lakelets occur at about the snow line of glacial times.

They are like the cirque lakes of the Alps and the American Rockies in their almost circular form. In Scotland they are called not only "Lakes" but frequently also "Tarns" especially when they have no outlet. Southward from the Dee valley (see the picture of Balmoral, 52 b/1 Nr. 294) rises the flat, marshy-topped pre-Cambrian ridge of Lochnagar to a height of 1148 meters above sealevel. Along its southern base lies a long glacial lake, Loch Dhu, which our picture shows together with the steeply rising cirque walls. There is an inlet and outlet altho they are not visible in the picture. In the background lies a low rocky ridge which in its form shows clearly the action of the ice.

The usually large and elongated bodies of water of the valley bottom, sunk much more deeply in the highland, are exclusively called "Lakes." These also are glacially formed, and with their clearly marked U-shaped valleys resemble the valley and marginal lakes of the Alps as well as the elongated lakes of western Scandinavia.

Karst topography north of the Bay of Cattaro. This picture is taken from Veli Vrh (alt. 1277 meters), east of Crkvice, looking northward over the country which stretches from the Bay of Cattaro towards Montenegro. This whole area, 1000 to 1300 meters high, possesses no valleys but has large streamless troughs and small sinks in which all water percolates away. One such trough (Uvala) lies in the middle ground while several small sinks ("Dolines") are shown in the dark parts of the foreground. In the right background is a completely pitted valley in which no water can flow. Nevertheless, more or less grass occurs in some of these troughs. These constitute the grazing grounds of the sparse shepherd population. The massive, compact highlands are similar to those in the foreground. The brilliant, white limestone cliffs are decomposed by chemical weathering along the bedding planes and the countless vertical joints. A few trees stand in the middle of the picture in such solution fissures, some of which are as much as 10 meters deep. On the smooth slopes are found in addition regular downward leading solution channels (as in the right front and middle) which may be assigned to the dissolving effect of the run-off. Some Austrian forts are on the ridge rising from the depression on the left.

By v. H. Slanar, *Vienna*

Center Cone in the Tengger Mountains (Batoq, Bromo, with Smeuru in the background). On the framework of the Island of Java rest mighty volcanoes. On the east, especially, occur individual cones. To these belongs Smeuru, the highest of the Javanese Mountains (3680 meters), whose smoke be-clouded summit is visible in the background. In the foreground one is looking into the great crater of Mount Tengger which is one of the greatest calderas of the earth. In the central portion of Mount Tengger, which is over 2000 meters high, there lies, hemmed in on all sides by steep cliffs, a deeply sunk, level plain from which the small volcanoes in the center of the picture rise. The photograph is taken from the high rim of the great crater, whose precipitous walls are visible across on the left. The flat bare bottom of the great crater in the foreground, called the "Sand Sea," is caused by fine ash so permeable to water that no vegetation can obtain a foothold on it. The great crater ring was made by an explosion which blew off the top of what was then a higher mountain. In the depression thus formed volcanic forces later built up smaller mountains which have partly coalesced to form a larger mass. In the foreground rises the isolated cone of the extinct volcano Batoq, which is shown on a larger scale in the picture following.

Seattle in the years 1884 and 1911. In contrast with the Atlantic coast with its numerous bays and estuaries, the Pacific coast of the United States is only moderately endowed with these features. Almost the only indentation worth mentioning is that of "Golden Gate," to which San Francisco owes its unique position. At the north boundary of the country, however, at Cape Flattery, the Strait of Juan de Fuca penetrates deeply into the land, to meet in Puget Sound as it doubles back to the southward a typically fiord-like topography. Here Seattle, as soon as it was directly joined to the great eastern part of the United States by the completion of the Northern Pacific Railroad in 1883, rapidly developed into a large city (in 1880 it had about 3500 inhabitants, in 1900 about 80,000, in 1910 almost 240,000).

The upper picture shows the typical appearance of a young frontier town of wood (almost entirely destroyed by fire in 1889); the lower, that of a business street of a great city of the United States.

The very rainy climate (west coast climate, poleward from 45°) is evident in the lower picture from the fog which spreads out before the slopes of distant Mt. Rainier (see picture 166). The upper picture is taken from practically the same point as the lower, only there the mountain is wholly concealed by clouds.

CONCLUSION

These translations do scant justice to the preciseness with which the well selected, cumulative, German adjectives point out the elements of the landscape. They do show, I feel sure, that the descriptions contain real geographic material much of which even experienced teachers will be glad to have. This is particularly true since the scenery of the United States receives relatively scant attention while the lesser known sections of the world—witness the translation dealing with the Javanese volcanoes—receive, comparatively, much more. Since these descriptions present scientific facts from literature not easily available to most teachers rather than glittering generalities, and since a teacher may have actually before him a picture of the slide as he makes his selection, the firm of Benzinger deserves both praise and support.

HOMER P. LITTLE

Clark University

GEOGRAPHIC ORIENTATION

W. M. DAVIS

Harvard University

THE PROBLEM OF ORIENTATION

The suggestive article on "The method of orientation in teaching geography" by Mr. Aurousseau in the April number of the *Journal of Geography* is ingenious in making practical use of a small globe. It leads in the direction of rational teaching and the development of intelligence, but it covers so large a range of problems that its different parts belong in far-separated school years, and some of the problems do not seem to me to belong in geography at all, certainly not in school geography. The article suggests several comments and questions.

First, "orientation" is a much larger problem than simply "setting the map." It includes the recognition of the cardinal directions outdoors; the Londoner who did not know the direction to Birmingham (p. 140) must have been very weak on outdoor orientation. Sunrise and sunset will give a rough east and west; but in high latitudes, like those of England, and in months not near the equinoxes, the directions of sunrise and sunset may be many degrees from east and west. A man who "hasn't a very good sense of direction" might to advantage learn to bisect the circular arc followed by the sun from sunrise to sunset, as an independent way of determining the meridian; and such a determination will be much more educational than an appeal to a compass with its empirical correction for variation. The bisection of such an arc may therefore be recommended as the next step, after sunrise and sunset, in the problem of outdoor orientation. (In this connection, what is meant by "variation for the month," 6th line, p. 143, in Mr. Aurousseau's article?)

SUN-CIRCLE AND LATITUDE

Second, as to orientation by means of a properly placed globe (p. 142). The latitude of the observer is here treated as a known quantity. It ought, of course to have been previously determined by the pupils themselves. The angle between the plane of the sun-circle and the vertical gives, I believe, the simplest independent measure of latitude for school

use. The added use of the sun-circle thus called for increases the value of a familiar acquaintance with it. If latitude is determined from the noon altitude of the sun, a correction for the sun's declination must be applied, and that correction is usually taken from an almanac. But to use a correction thus obtained invalidates the method; one might as well use an arbitrary instead of a logical step in a geometrical demonstration.

Whether a globe should be used before a map as Mr. Aurousseau recommends (p. 142) depends on whether a teacher wishes to proceed from small to large, inductively, or from large to small, deductively. Either method may be followed with good results. If a beginning is made with a globe, it is desirable that, when the next step of introducing a map is taken, the map should be first shown, not hanging on a wall, but lying on a table near the globe, so that, as a large view of the local region, it may lie horizontal, like the small view of the local region at the "top" of the globe. After the proper relation of map and globe is thus made clear, the map may be hung vertically on the wall without destroying the conception that it represents a part of the globe.

Third, the use of a second globe, placed "beside the first one" (p. 143), and "set" for some distant locality, introduces a perilous change in the attitude of the earth's axis, which, as should have already been discovered by sky observation, always stands parallel to "itself." I should like to learn the opinion of teachers as to whether the use of a second globe thus set does not confuse the student by suggesting that the axis changes its attitude. It is, by the way, by no means evident that the axes of the two globes, thus set, "always lie in the same plane." If the second is placed "beside the first one," that is, east or west of it, the two axes cannot lie in the same [meridian] plane. It is only when the two globes are north and south of each other that the axes can lie so.

Orientation of Solar System

Fourth, orientation of the solar system (p. 144). Following a suggestion made by Professor Mark Jefferson several years ago, I believe that this subject belongs not to geography but to astronomy. It is, moreover, entirely too difficult a subject for a young geographer, who has quite enough to do in learning the visible and truly geographical facts of the sun's (apparent) motion in the sky. He can, of course, memorize various phrases from a book concerning the form of the earth's orbit and the inclination of the ecliptic, but I question whether one school pupil in fifty or one hundred gains any clear conceptions of the spacial relations involved in those phrases; and I feel sure that the "Average Teacher"—if the poorly equipt young woman for whom a plea is made in the article following Mr. Aurousseau's is really the average teacher—will have at least as much difficulty as, if not more difficulty than the average pupil in forming such conceptions. Instead of attempting anything so difficult as the "orientation of the solar system" in a course on school geography, it would be more profitable for the pupils to acquire by observation a vivid idea of the slow northward and southward spiraling of the sun in an equatorial skybelt, 47° wide, in the course of a year. That body of knowledge, once acquired, would have many applications and would be of life-long value; and it would be an excellent introduction to the orientation of the solar system, if that difficult subject is later reached.

As far as I can make them out, the specifications, p. 144, for the adjustment of the cardboard, which is to represent the plane in which the earth revolves around the sun, are incomplete. The sun-line may be easily pointed to the sun; but an infinite number of attitudes may be assumed by the cardboard while the sun-line is thus pointed. Which one of them is correct? "Manipulation indoors" does not explain; it is vague to the point of uselessness. The specifications might be made more explicit by saying:— "At noon on either the winter or the summer solstice, direct the sun-line to the sun and (the card being originally a rectangle) set the sun-edge of the card level." But what shall be said for the other hours of those two days, and for all the hours of all the other days of the year?

Plane of the Earth's Orbit

Fifth, the specification (bottom of p. 144) by which the change of seasons is explained involves an apparent change in the attitude of the plane of the earth's orbit. There is no

such change in nature; hence why suggest that there is? The error here introduced is of the same order as that concerning the earth's axis caused by the "setting" of the second globe, alluded to above. The statements on p. 145 regarding the coincidence of the plane of the ecliptic with the horizontal "for a few places in the polar regions," and with the vertical "for a belt of places in the equatorial regions," seem to need supplementary explanation. Coincidence with the horizontal is true only for points on the polar circles, and only for a moment for each point on each circle once each (sidereal) day. Coincidence with the vertical is true only for successive points on successive latitude circles (better said, on northward and southward spirals like those of the sun's course in the sky) in the torrid zone, and for each such point only for a moment once a year. Perhaps this is what is meant by "necessary qualifications"; if so, the qualifications should be specified if they are to be of use in school teaching. But as a matter of fact they are inevitably too complicated to be of use there. The time that would have to be spent upon them had much better be given to learning the spiral northing and southing of the sun; and learning it so well that it can be effectively indicated by slowly turning a pointer round and round as if to scratch the spirals in the sky, partly in the visible half of the sky above the local horizon, partly in the invisible half of the sky below the local horizon.

Sixth, the first article in the April number, a discriminating study on "Evaluating tests in geography," suggests that a test should be attempted on the value of Mr. Aurousseau's answer to the question that he notes may be asked by "an intelligent student" regarding the slope of the ecliptic card (p. 145). I should like very much to know how many readers fully understand his statement:—"The model represents his own *relation* to things at all times; he himself is moving thru successive positions in space, and the relation for him is constant." To make this more specific, let it be asked whether the angular relation of the sloping card (representing the plane of the earth's orbit) to the vertical at the observer's position on the globe is constant thru the twenty-four hours of any day in the year. It seems to me to vary.

LOCAL VIEW OF THE HEAVENS

Seventh, as to the "local view of the heavens" (p. 145). The subject is largely astronomical; but if it is to be taught as a part of school geography, the use of the device here suggested should surely be preceded by a certain amount of sky and star observation; and the failure to make explicit mention of such a requirement may mislead teachers who are as a rule prone to replace outdoor observation with indoor apparatus, and indoor apparatus with textbook lessons. Indeed, the introduction of a globe-model into the study of the "local view of the heavens" recalls what was said of an earth-and-sun model by an experienced Boston school teacher, who was a member of the Committee of Ten on Geography thirty years ago. "It is easy," he remarked, "to use the model, but are you sure that the pupils really succeed in translating the model into the phenomena of the heavens?"

My belief is that the difficulties found by many persons in clearly understanding "why we get different views of the heavens from different points on the earth's surface" (p. 145) are an inevitable result of their having been hurried along too fast in the verbal study of the sky, without a proper observational basis, in their early school years. It is truly difficult to induce pupils to look attentively at the stars in the evening, out of school hours; and yet without such looking, no real understanding of the heavens can be hoped for. The trouble here is part of a larger trouble; namely, that a whole series of large and mature-minded conceptions, concerning the earth's shape, size and rotation, gravitation, time, latitude, longitude, year, seasons, and zones, must usually be hurried thru on the pages of a textbook, without securing an observational knowledge of the plainly visible facts on which those conceptions necessarily depend. The sun's daily circle-arc across the sky—and if possible the stars' nocturnal circle-arcs—ought to be known by observation before the rotation of the earth is even mentioned. The uniform slant of all those circle-arcs and the attitude of an axial line at right angles to all the parallel circle-planes ought to be familiar

before the earth's axis is spoken of. Reported facts regarding the different angular relations of the sun-and-star-circles to the vertical at different stations of observation on the same meridian, and regarding the repetition of similarly differing angular relations at different stations on all meridians ought to be presented and discussed before the shape of the earth is announced. (The noon-altitude of the sun with respect to different slants of a road that runs north-south over a hill may be helpfully used here.) Latitude and longitude ought to be worked out, roughly, as geometrical relations inherent on a rotating globe, easily determined by sun or star observations, provided the attitude of the axis is always parallel to itself. (Observations of the sun's noon altitude on a given day ought to be exchanged between schools, for example in Minnesota and Texas, to confirm the inferences as to earth shape and latitude; and if the expense of a telegraphic signal can be afforded, similar observations for longitude ought to be exchanged between schools in the east and the west). The length of a year never ought to be taught until young pupils have made twelve or fifteen records, at intervals of about a month, of the changing noon altitude of the sun, of the changing directions of sunrise and sunset, of the changing length of the day, of the changing constellations seen opposite sunset as soon as the sky darkens, of the essentially constant angular diameter of the sun's disc (easily measured by letting a ray of sunlight pass thru a pinhole at one end of a long box and fall upon a translucent paper at the other end), and of the accompanying changes of temperature and seasons and plant growth. Then the number of days required for a complete cycle of change may be counted: only thus can young pupils learn for themselves what a year really is.

The Pupils Right of Discovery

As a matter of fact, is there any school in the country in which the pupil's right of discovery of these elementary facts is not systematically infringed upon? As schools are ordinarily conducted, such infringement is almost unavoidable. True, the desired observations might be recorded and the discoveries made by pupils in a normal school, and the facts thus learned would be immensely useful to them in replacing memorized phrases. But, even if a normal school pupil thus becomes "easy-minded" about all the changes that are associated with the short word, "year," how can she find time to guide the necessary observations by her pupils when her own teaching career begins? Yet how defective must our educational system remain until the teaching of the meaning of a year and of similarly fundamental things is properly based on observation! The number of things learned—that is memorized—may not be so large then as now but how immensely greater will be the development of the intelligence!

It is because of its appeal to the intelligence that the various practical suggestions of Mr. Aurousseau's article are to be commended; but the suggestions regarding orientation cannot be expected to reach successful application unless they are combined with many other practical suggestions in such a manner as to constitute a gradually progressive, inductive sequence, in which each step of advance is intelligently taken. This sequence he does not seem to have considered. Some of its steps are indicated briefly in the second preceding paragraph, which includes many other topics besides the orientation. I wish that experiment might be made with them in some normal school and the results reported in a future number of the *Journal*, a year or two hence. Without the observational basis above suggested, it is questionable whether most school pupils acquire anything more than an arbitrary, *memoriter* acquaintance with the large and fundamental concepts regarding the earth as a globe. Such an acquaintance has, to be sure, a considerable value; it is, indeed, the only acquaintance with those concepts that most adults possess; but it is a pity that an intelligent understanding of them is not gained, not for any practical use that it would have, but simply for what it would add to the intellectual joy of living.

GEOGRAPHIC ORIENTATION—A REJOINDER

The Editor,
The *Journal of Geography.*
Dear Sir:

The article on "Geographic Orientation," by Professor W. M. Davis, being a penetrating criticism of my article on "The Method of Orientation in Teaching Geography," which appeared in the April issue of the *Journal of Geography*, necessitates comment on several points.

My paper was written because I believed I had several ideas to communicate on a neglected and important branch of geography. Never having taught geography in an American school I had no intention of outlining "a gradually progressive, inductive sequence," or, in other words, a course of geography based upon orientation. In so far as I have elicited such careful comment from Professor Davis, I seem to have succeeded in my primary intention, while he has himself supplied a large amount of the filling-in, which is obviously necessary for the outlining of a course of the kind. No particular stage of instruction was in my mind, and, as well as endeavouring to appeal to intelligence, I have also relied on intelligence, apparently to the verge of obscurity in several sections.

As regards the use of a second globe (p. 143 of my article), the danger of introducing "a perilous change in the attitude of the earth's axis" is an unavoidable one, if orientation is to be used in teaching at all. My direction of reference being the upright posture of the observer, it is possible to advance arguments which would invalidate the whole principle of setting the globe. The point to be brought home is really the change of the observer's relation to the earth's axis, as he moves from place to place. The regularity of these relations for a given place, and their variation for different places, is the critical point in the method.

The card model, used to express orientation with respect to the solar system, is of course, mathematically incorrect. The plane of our lines of sight to the sun passes thru our point of observation. The deviation from the truth is, however, legitimate and accurate enough to impart the correct idea, in dealing with the relatively enormous solar system. On page 144 of my paper I have stated that the sun-line on the card "represents the direction of the sun from the observer at noon." Let the model be set at noon, on twelve occasions, one month apart, during the year, and the inclination of the card be recorded on each occasion. The nature of the observer's relation to the *fixed* sun will then be quite clear. It is impossible to convey any idea of an infinite number of changes, extended over any infinite number of points of time. A series of observations on the sun, regarded as a fixed body, will, to my mind, express the year better than teaching the "spiral northing and southing of the sun," which is only an apparent thing.

The second paragraph on p. 145 is obscure owing to its brevity. For a given place, the relation of an observer to the sun is constant in that it is regularly rhythmical. The rhythm is perfectly definite for that place. For any other place not on the same parallel, or on the corresponding parallel in the other hemisphere, the "amplitude of the rhythm" will be different.

M. AUROUSSEAU

Washington, D. C.,
May 27th., 1922

TO COMPLETE THE TOPOGRAPHIC MAPPING OF THE UNITED STATES

Teachers who use topographic maps should read the following excerpts taken from a circular which is being distributed by the Federated American Engineering Societies.

"Only a little more than one-third of our country is covered by accurate topographic surveys."

"At the present rate of mapping it would take 80 to 100 years to complete the topographic map of the United States."

"The prompt completion of the topographic map of the United States is called for by the following interests:

Irrigation projects	Military considerations
Water-power development	Aeronautics
Flood control and prevention	Oil prospecting
Drainage engineering	Geologic mapping
City water supplies	Mining operations
Reclamation Service	Forestry work
Canal building (location)	Soil mapping
Highway construction	Valuation of land
Railroad building	Land classification
Automobile travel	Educational use
Post-route mapping	City planning"

"Air traffic needs all the landmarks that the best survey can supply."

"The location of prospective oil fields without topographic maps involves slow and expensive work and often ruinous mistakes. In some areas the cost of one dry hole would map a county."

"The saving of two days' war expense to the United States in November, 1918, would have completed the topographic mapping of our country without aid from the States."

"The best possible topographic maps are the first requisite in war."

"The topographic map is the only perfect touring map—it shows every hill, valley, stream, road, and house and the grade of every slope."

"Half a billion dollars is being spent annually for highway construction, much of it on routes chosen from among other possible routes, and such a choice requires a broad knowledge of the topography."

"The location of expensive highways may be fixed by (a) preliminary surveys or (b) topographic maps. Another alternative is (c) expensive mistakes."

"If our highway construction costs one per cent more without topographic maps than with them, the difference would map the whole United States in ten years."

"In the full survey of a State's water powers the topographic map is the first step."

"To locate proper reservoir and dam sites may require as many weeks in the field as minutes with a good topographic map."

" 'The early completion of the topographic map of the United States is essential to the proper reclamation of the arid lands.' "

Western States Reclamation Association

" 'For the City of New York hundreds of thousands of dollars and years of time were saved by the United States topographic maps in extending its water supply.' "

Alfred D. Flinn to Senator Wadsworth

" 'After expending $10,000 in examining the sources of water supply, the vicinity was mapped, and I at once from an inspection of these maps discovered a better supply, which the city is now using, and that preliminary survey did not cost the city a cent.' "

Former City Engineer R. A. Cairns, Waterbury, Conn.

" 'A complete topographic map of the State of Wisconsin would be more than worth the cost of its completion to the Highway Commission alone, not to mention the variety of other economic uses.' "

W. O. Hotchkiss, Wisconsin State Highway Commission

"There is now pending in Congress a bill known as the Temple bill, providing for topographic mapping at such a rate as to complete the United States in twenty years. It is always in order to write to your own congressman to make a request or endorse a bill.

Such letters carry real weight when the writer knows what he wants and why he wants it and writes his own letter. Just an ordinary straightforward letter (not a stereotype form) is what congressmen pay attention to."

No class in the community could do more than the teachers to influence Congress to complete the Survey of the United States. If there is no topographic map of your own home area, it is worth remembering that the area chosen to be mapped each year depends largely on the local demand. If no one cares enough to ask that your home area be surveyed, it may be put off till last. That might be 80 to 100 years at the present rate. It pays to make your wishes known.

Copies of the circular referred to and also some instructions as to how to proceed to make your wants known may be had free by writing to the Federated American Engineering Societies, 24 Jackson Place, Washington, D. C.

N. M. FENNEMAN

GEOGRAPHICAL PUBLICATIONS

D. Jones and D. S. Whittlesey. **Types of Climate.** 17 pp., 1 map. University of Chicago Press, Chicago. 1922. 35c.

The authors have divided the climates of the world into fifteen types and described each. The pamphlet is a preprint from "Principles of Economic Geography" which is in preparation.

P. L. Bell. **Venezuela. A Commercial and Industrial Handbook with a Chapter on the Dutch West Indies.** Sp. Agt. Ser. No. 212. 472 pp., 7 maps, 14 photos. Government Printing Office, Washington. $1.00.

St. Lawrence Waterway. Message from the President of the United States. Senate Doc. 114, 67th Cong., 2nd Sess. Gov. Printing Office, Washington. 1922.

St. Lawrence Waterway. Report of the United States and Canadian Government Engineers on the Improvement of the St. Lawrence River from Montreal to Lake Ontario made to the International Joint Commission. Senate Doc. 179, 67th Cong., 2nd Sess. Gov. Printing Office, Washington. 1922.

Yozo Tamura. **Mukden—Old and New.** 5 photos. *Travel*, Sept., 1922.

Celinda B. Abbot. **Newfoundland—England's First and Oldest Colony.** 11 photos. *Travel*, Sept., 1922.

Edward A. Salisbury. **Cruising in Coral Seas. Pen-Pictures of Vanishing Races.** 15 photos. *Asia*, Aug., 192.

W. L. Westermann. **The Heritage of the Near East.** 10 photos, 1 map. *Asia*, April, 1922.

Kirtley F. Mather. **Along the Andean Front in Southeastern Bolivia.** 1 map, 1 diag., 10 photos. *Geog. Rev.*, July, 1922.

E. S. Gregg. **The Influence of Geographic Factors on Ocean Shipping.** *Geog. Rev.*, July, 1922.

Marie Widmer. **Thru the Year with the Swiss Peasant.** 12 photos. *Travel,* April, 1922.

The April number has three other articles on Switzerland and four on Sweden, all profusely illustrated.

Alvin F. Harlow. **The Frontier People of the Appalachians.** 10 photos. *Travel,* June, 1922.

Sister M. Alma. **The Teaching of Geography in the Elementary School.** *The Catholic School Journal,* Aug., 1922.

An illuminating discussion of the spiritual side of geography teaching—a view too often forgotten.

Drew Pearson. **At the Foot of the Crnagoras.** 6 photos. *Bull. Geog. Soc., of Philadelphia.* April-July, 1922.

Walter D. Wilcox. **The Valley of the Hidden Lakes.** 1 map, 3 photos. *Bull of Geog. Soc. of Philadelphia.* April-July, 1922.

M. W. Hilton-Simpson. **The Berbers of the Aures Mountains, Algeria. A Study of Primitive People.** 1 map, 6 photos. *Scottish Geog. Mag.,* July, 1922.

Robert R. Walls. **Portuguese Nyasaland.** 1 map, 5 photos. *Scottish Geog. Mag.,* July, 1922.

Clayton S. Cooper. **The Rich Resources of Peru.** 1 map, 4 photos. *Bull. Pan Am. Union,* July, 1922.

The Chilean Switzerland: **A Paradise of Lake, Forest, Mountain, and Stream.** 13 photos. *Bull. Pan Am. Union,* July, 1922.

C. E. N. Bromehead. **The Influence of Its Geography on the Growth of London.** 1 map. *Geog. Jour.,* Aug., 1922.

Alexander Y. Burslem. **The Development of the Pottery Industry in the United States.** 20 photos. *Bull. Pan Am. Union,* Aug., 1922.

C. F. Rey. **Abyssinia and Abyssinians of Today.** 1 map. *Geog. Jour.,* Sept., 1922.

F. K. Ward. **Thru Western Yunnan.** 10 photos. *Geog. Jour.,* Sept., 1922.

Leon Estabrook. **The World's Food Supply.** *World Agriculture,* Autumn, 1921.

This is a "World Food Number" and the Winter and Spring, 1922 number is devoted to Russia. A "Denmark Number" was published as the Summer, 1922 number.

John J. Macfarlane. **Import Trade of the United States,** 1913, 1920, 1921. 3 diagrams. *Commercial America,* July, 1922.

Ellsworth Huntington and Frank E. Williams Business Geography. 481 pp. 97 maps, photos, and diagrams. John Wiley & Sons, Inc., New York, 1922.

This volume is a welcome addition to the text-book literature of geography since it does pioneer work in attempting to show how geography functions in the field of business. Tho rich in geographic material and interestingly written one does not feel convinced that the authors have accurately delimited the field of business geography.

The text matter of the book is placed under four general headings as follows: 1) geographical principles in business, 2) business relations as evolved among typical communities, 3) business of the continents, and 4) the business of the United States and Canada. A fifth part of forty nine statistical tables is added, and these tables alone would make the book a valuable addition to one's study shelf.

In the text one finds a number of statements that are incorrect or at best are only half truths. The statement, page 26, that differences in agricultural production east of the Mississippi and north of the Ohio are due to differences in relief since there are no marked differences of climate" will hardly be accepted by those familiar with southern Illinois and northern Wisconsin. One learns on page 50 that if the *capital* were available an additional sixty-five million acres of our arid lands might be brought under irrigation, thus making a total of seventy-five million acres so cultivated. This is around fifty per cent greater than is claimed by the United States reclamation service to be feasible of irrigation. Again, we are told, page 139, that in 1919 Wisconsin owned one-fourth of the dairy cows of the United States. On January 1, 1920, according to the United States Department of Agriculture Yearbook for 1920, Wisconsin had slightly less than one-twelfth of the milk cows of this country.

In view of the past performances of the coal miners one questions whether they would work full time at lower wages if they were sure of full time work all the year (p. 330). From statements on page 330 the student might draw the erroneous conclusion that the only reason miners often work part time is due to the extremely seasonal market provided by those using coal for domestic purposes.

Occasional expressions are far below the general tone of the book. One can hardly believe that the market gardener will be particularly enamoured of his calling or will have his wits brought to razor sharpness because he finds it so "interesting to decide which beans are ready for picking." (159.)

Inasmuch as Kansas is the premier wheat producing state the illustration for the wheat belt, page 349, might well have been taken from it rather than from North Dakota.

Numerous exercises and problems are given at the end of most of the chapters. Most of these are excellent but they are frequently so comprehensive in their scope as to be generally impracticable for student use.

In spite of its minor shortcomings the book has much merit and the authors deserve credit in venturing to write a text in this new but very important field.

C. J. POSEY

University of Kansas